City of Santa Barbara
Water Supply Management Report
2009 Water Year (October 1, 2008 – September 30, 2009)

Water Resources Division, Public Works Department
December 2009

INTRODUCTION

The City of Santa Barbara operates the water utility to provide water for its citizens, certain out-of-City areas, and visitors. Santa Barbara is an arid area and providing an adequate water supply requires careful management of water resources. The City has a diverse water supply including local reservoirs (Lake Cachuma and Gibraltar Reservoir), groundwater, State Water, desalination, and recycled water. The City also considers water conservation an important tool for balancing water supply and demand.

The City's Long-Term Water Supply Program (LTWSP) was adopted by City Council on July 5, 1994. While it is the current strategic plan for the City's water supply, the City is conducting analyses to update the LTWSP in conjunction with the current *Plan Santa Barbara* process.

This annual report summarizes the following information:

- The status of water supplies at the end of the water year (September 30, 2009)
- Water conservation and demand
- Drought outlook
- Major capital projects that affect the City's ability to provide safe clean water
- Significant issues that affect the security of the City's water supplies

Appendix A provides supplemental detail. Additional information about the City's water supply can be found on-line at: www.SantaBarbaraCA.gov/water

On December 14, 2009, the Water Commission reviewed the draft suggested clarifications which have been incorporated and voted to recommend adoption of the report.

WATER SUPPLIES

The City has developed five different water supplies: local surface water; local groundwater (which includes water that seeps into Mission Tunnel); State Water; desalinated seawater; and recycled water. Typically, all of the City's demand is met by local surface water reservoirs and recycled water, augmented as necessary by local groundwater and State Water. The City's desalination facility is currently off-line.

The City's local surface water comes from Gibraltar Reservoir and Lake Cachuma, both of which are located in the upper Santa Ynez River watershed. The inflow to these reservoirs is rainwater, so rainfall data for Gibraltar Reservoir is very important for water supply management purposes. Figure 1 shows rainfall for the past ten years as compared to the

50-year average. Additional historic rainfall information is included in Appendix A. Runoff generated by average rainfall is generally enough to fill Gibraltar; however, it takes above-average rainfall to produce any significant inflow to Cachuma. Rainfall during the past year was about 60% of average. To enhance rainfall, the City participates in the cloud seeding program administered by the County of Santa Barbara. However, the program was limited to the North County watersheds during this past year due to concerns about potential erosion resulting from the Zaca Fire.

Figure 1. 10-Year Rainfall History at Gibraltar

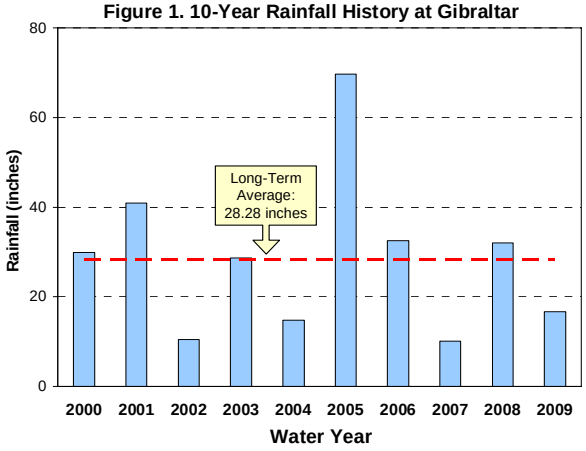


Table1, below, summarizes the status of the City's various water supplies at the end of the 2008-2009 water year.

Table 1. End of Year Status of City Water Supplies*

Lake Cachuma	Total Capacity: 186,636 AF (2008 survey) End of Year Storage: 142,479 AF Percent of Total Capacity: 76% The City's share of the Cachuma Project normal annual deliveries is 8,277 AF. Actual use was 7,132 AF. The unused portion of the City's share has been carried over to the current year, resulting in an end of year balance of 4,872 AF.
Gibraltar Reservoir	Total Capacity: 5,303 AF (2008 survey) End of Year Storage: 2,865 AF Percent of Total Capacity: 54% Gibraltar Reservoir typically fills and spills about two out of every three years. Deliveries over the past ten years have averaged about 3,600 AFY. Deliveries in 2009 were 3,654 AF.
Mission Tunnel	Groundwater that seeps into Mission Tunnel is an important part of the City's water supply, providing 1,253 AF in 2009, slightly above the long-term average.
Groundwater	Groundwater levels remain high since they have generally been pumped at less than the annual recharge rate during the past decade. Four of nine production wells are currently available for production. Four additional wells feeding Ortega Groundwater Treatment Plant (OGTP) are scheduled for rehabilitation in conjunction with the upgrade of the OGTP. The City used 1,059 AF of groundwater during 2009.
State Water Project (SWP)	The City has a 3,000 AF entitlement, plus 300 AF drought buffer. The Coastal Branch and Santa Ynez Extension of the SWP are in place to deliver the City's SWP water into Lake Cachuma, subject to availability of water supplies. The City used 427 AF of State Water in 2009 and has begun to take advantage of a new opportunity for carryover storage in San Luis Reservoir just south of the Sacramento-San Joaquin delta.
Desalination	The desalination plant remains in long-term storage mode and no water was produced this year. Staff projects no need for desalinated water within at least the next 5 years.
Recycled Water	The City's Water Reclamation Project provides recycled water to parks, schools, golf courses, other large landscaped areas, and some public restrooms. The system typically provides approximately 5% of the total water demand. Demand from recycled water customers was 733 AF in 2009.

*The Water year runs from October 1 through September 30. All data above is as of September 30, 2009

CITY WATER CONSERVATION PROGRAM

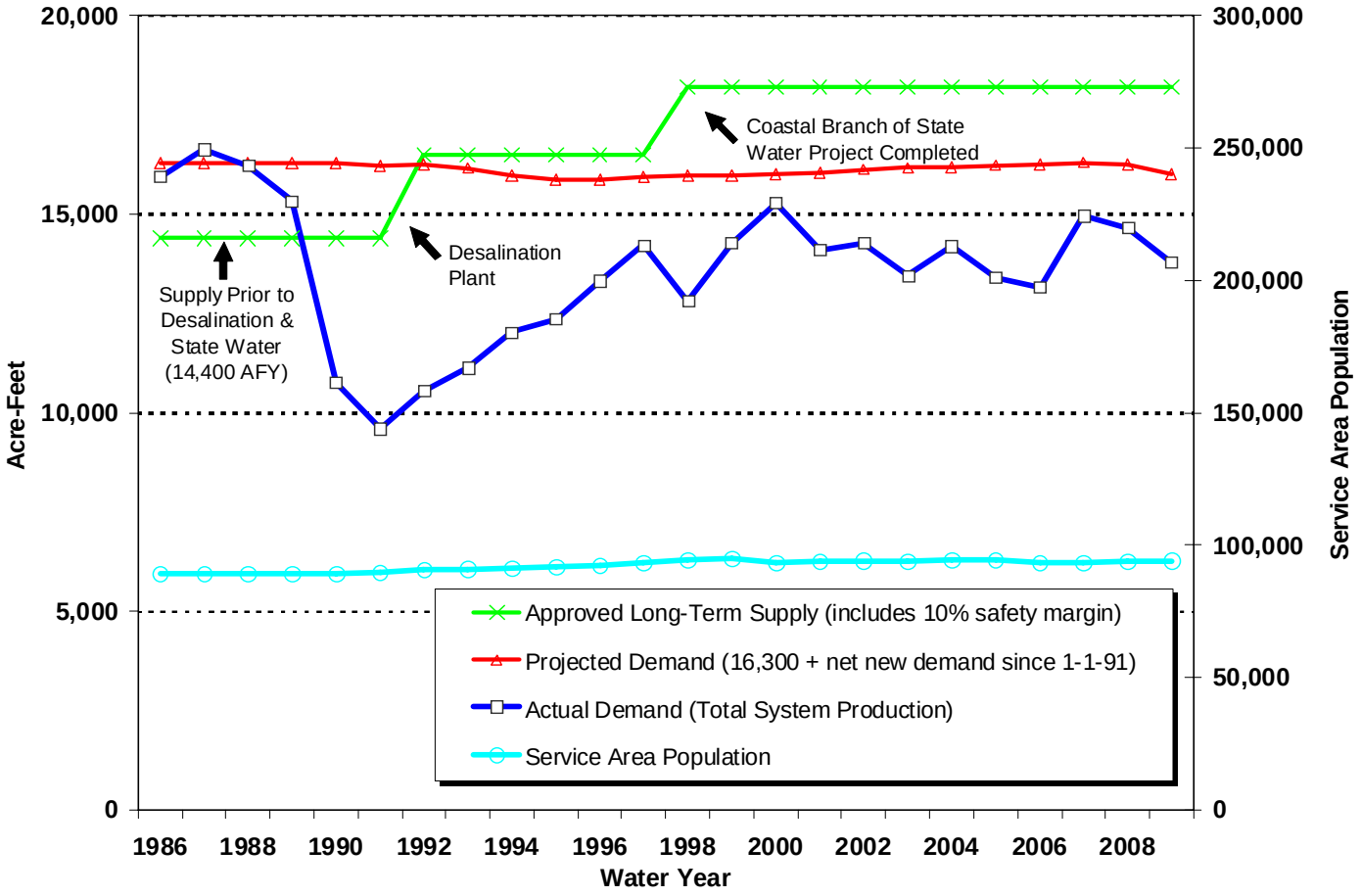
The City depends on water conservation as a part of its water supply plan and is an active member of the California Urban Water Conservation Council (CUWCC). The City's Water Conservation Program is based on implementing the Best Management Practices (BMPs) defined by CUWCC, as well as pursuing additional progressive opportunities for water conservation. Highlights of the City's water conservation program include the following activities, some of which are administered jointly with other local water agencies and the Santa Barbara County Water Agency:

- Free water check-ups for City water customers (493 check-ups during the past water year). Customer surveys of water check-ups demonstrate a continuing high level of customer satisfaction.
- Joint sponsorship of regional water efficiency programs, including the "20 Gallon Challenge" media campaign, the "Garden Wise Guys" television show, Water Wise Gardening for Santa Barbara County CD and website, and residential and commercial rebate programs.
- Green Gardener Program, which provides bilingual training for landscape maintenance professionals in resource-efficient and pollution-prevention landscape maintenance practices. Since 2000, almost 1,000 Green Gardeners and 150 Advanced Green Gardeners have participated. More info at www.greengardener.org.
- Maintain the "Watering Index" and "Landscape Watering Calculator," easy-to-use web-based tools that help estimate the right amount of water to apply to a landscape.
- Public information is provided for City water customers including a wide variety of web-based conservation information at the City's web site (www.SantaBarbaraCA.gov/water) and the regional web site (www.sbwater.org). Additionally, over 20 different brochures on water efficient practices and water wise landscaping are available free to City water customers.
- Water education program reaching approximately 2,000 K-12th grade students per year through classroom presentations, wastewater treatment plant tours, curriculum distribution, and the Water Awareness High School Video Contest.
- Hotels and motels are being contacted to encourage participation in public information efforts aimed at their guests. New table tents are available for restaurants to provide notice that water will be served upon request.
- Launched the Smart Landscape Rebate Program which offers rebates to increase water efficiency in both commercial and residential landscapes. Rebates on approved irrigation equipment and landscape materials are up to 50% of material costs, not to exceed $1000 per site.
- Published the "Water Wise Gardening in Santa Barbara County" a searchable on-line and CD database, providing comprehensive information on water wise plant lists, garden tours, soil types, irrigation scheduling, and other gardening resources that are specific to the Santa Barbara area.
- Rain Sensor Program, which provides a free rain sensor to City water customers. A rain sensor automatically shuts off the irrigation controller during and immediately after it rains. Since April 2008, 305 rain sensors have been distributed.
- Participated in the effort to adopt more flexible State regulations on graywater and conducted a very popular workshop on the subject attended by over 100 people.

MONITORING OF WATER SUPPLY AND DEMAND

Water demand is measured by water production, because water is produced to meet the demand. Figure 2 illustrates the tracking of supply and demand during the period of the LTWSP. It shows the original approved water supply, and how it was augmented with desalination and State Water. It also shows the history of demand, both on an actual basis and as a theoretical year by year demand projection, reflecting the estimated net effect of new development and identifiable conservation savings since 1991. This graph illustrates the current LTWSP, which is the current adopted City policy for water supply management, but is now almost 20 years old and is scheduled for an update in conjunction with the *Plan Santa Barbara* process to update the City's General Plan.

Figure 2. Water Supply and Demand (AFY)

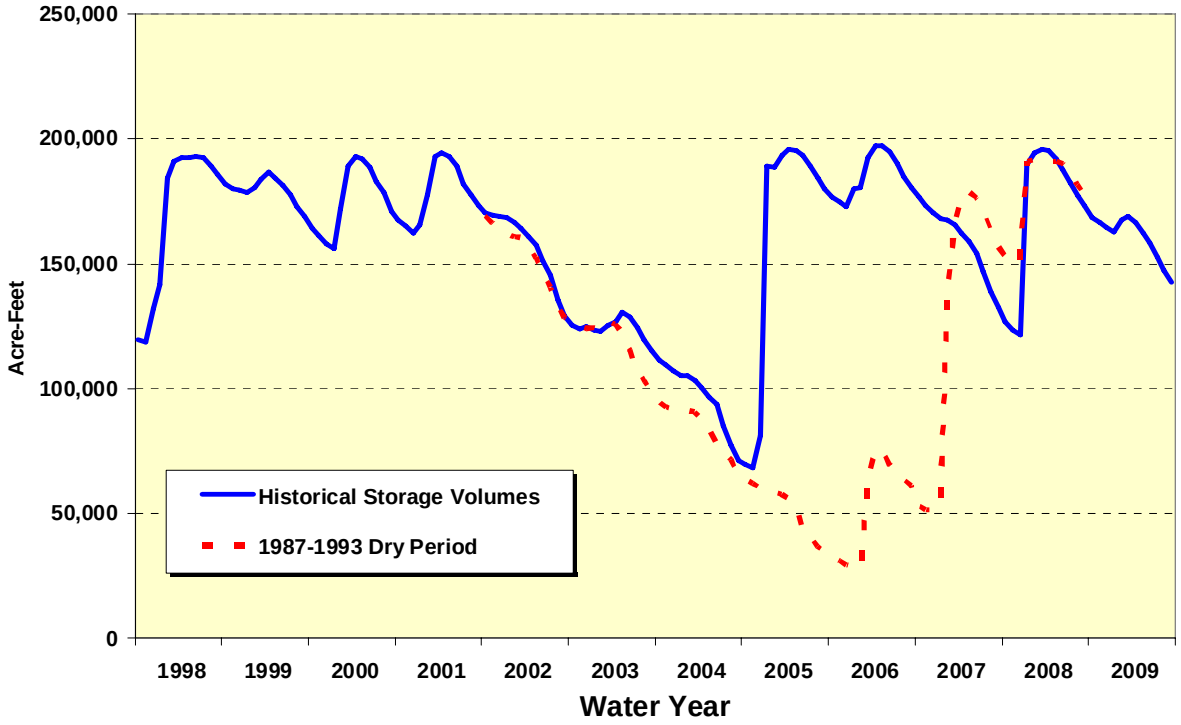


Total system water production (potable plus recycled water) for the 2008-2009 water year was 13,791 AF. Following two years of unusually dry weather and high usage, the 2009 demand returned to slightly below what we would consider our normal demand of 14,000 AFY, despite local rainfall of 40% less than average. The recent demand history is shown as the "Actual Demand" line in Figure 2.

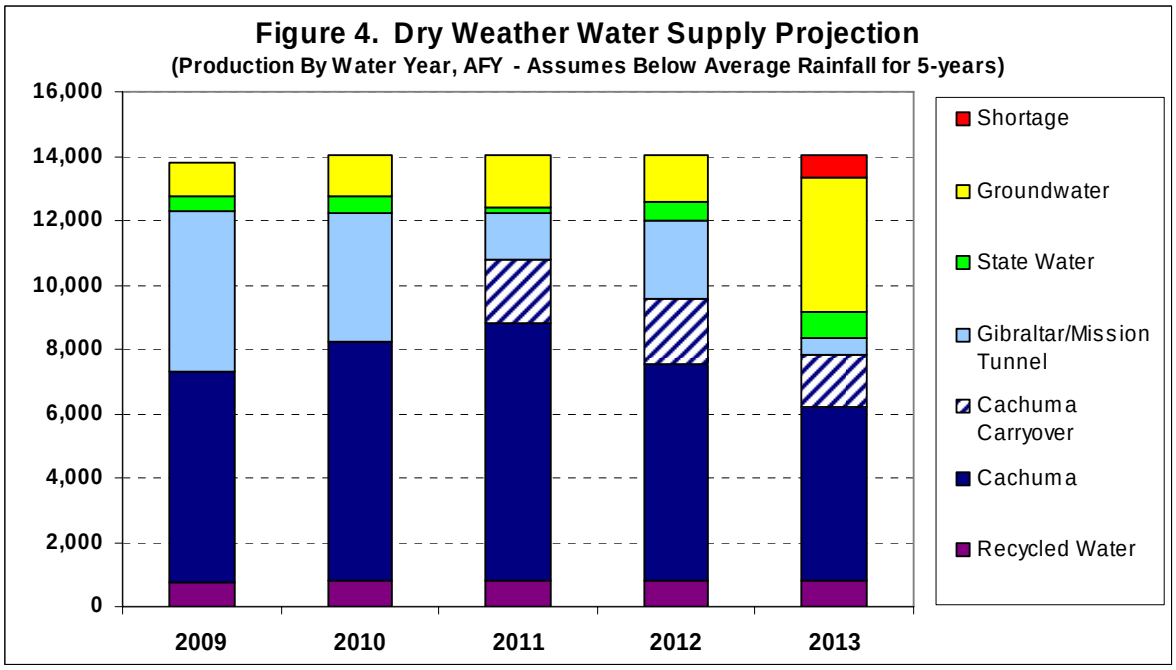
DROUGHT OUTLOOK

Because the City depends heavily on local surface water, drought is the situation most likely to reduce our available water supplies. Lake Cachuma is our primary source of surface water and its storage level is the most important indicator of potential near-term drought impacts. Figure 3 shows a recent history of storage levels at Lake Cachuma. The severe drought period of 1987-1993 is also shown for comparison to the less severe dry period of 2002 through 2004. Cachuma members normally begin to take voluntary reductions in deliveries when the reservoir storage drops below 100,000 AF as a way of stretching supplies in case drought continues.

Figure 3. 10-Year History of Lake Cachuma Storage Levels (AF)
With 1987-1993 Dry Period Shown for Comparison



The City's water supply is planned to meet 100% of demand in most years and no less than 90% of demand during a 5-year period of below average rainfall that defines our "critical drought period." When rainfall is below average, Lake Cachuma experiences limited inflow and the storage level continues to drop. So we typically plan as if the first year after a spill at Cachuma is the first year of a 5-year critical drought period. Figure 4 shows a projection of how we would expect to meet expected demand of 14,000 AFY over such a 5-year period beginning with the recently completed 2009 water year and assuming continued below average rainfall and minimal inflow to Lake Cachuma. Not all available State Water is needed in the early years, so deliveries are reduced. Later years reflect anticipated availability during a critical drought period. Groundwater and Cachuma carryover are used to offset reductions in surface water availability as the drought progresses. The projection shows a 5% shortage in the fifth year, which is consistent with the LTWSP standard of an acceptable shortage of up to 10% during a critical drought period.



CAPITAL PROJECTS

Staff continues work on a number of projects to improve the reliability and quality of City water supplies:

- ***San Roque and High School Wells:*** The San Roque Well reconstruction was completed in 2009. Also completed was the design for landscaping and permanent fencing at the High School Well to protect the site pending future need to use this well for inland pumping to minimize seawater intrusion into the groundwater basin.

- ***Ortega Groundwater Treatment Plant:*** Final design and permitting work is underway for upgrading the Ortega Groundwater Treatment Plant and rehabilitating the four wells that feed into it. The project aims to preserve an important part of the City's water supply for use to meet peak demands, back-up surface water supplies during drought, and provide an emergency water supply in the event of catastrophic supply interruptions.

- ***Advanced Water Treatment Project:*** Addition of ozone treatment facilities is being designed for the Cater Water Treatment Plant. A low-interest State Revolving Fund loan has been approved to fund this project as well as groundwater treatment improvements, well rehabilitation, and distribution system improvements at Reservoir No. 1 to facilitate distribution of water from low elevations to higher zones as would be necessary during catastrophic water supply interruptions.

- ***Recycled Water Demineralization:*** A conceptual project to reduce the mineral content of the City's recycled water is being evaluated in conjunction with planned improvements to the secondary wastewater treatment process at El Estero Wastewater Treatment Plant.

WATER SUPPLY ISSUES

There are a number of significant issues related to the City's water supplies, discussed briefly below.

Cachuma Project Water Rights Hearing: Members of the Cachuma Project continue to await a decision by the State Water Resources Control Board (SWRCB) following a major hearing on the Cachuma Project's water rights completed in November 2003. This was a continuation of SWRCB's long-standing review of the Cachuma Project in terms of its effects on downstream water users and on Public Trust resources. A December 2002 settlement agreement among several of the participants in the hearing significantly reduced the number of issues involved. The SWRCB ruling has been repeatedly delayed pending completion of the necessary environmental documents.

The eventual ruling has the potential for significant impacts on the water rights for the Cachuma Project, the largest single source of supply for the City. The issue has been made more complex by the endangered species listing of the steelhead trout. The listed steelhead are defined as rainbow trout that are anadromous (travel to the ocean) and that inhabit areas below the first ocean migration barrier, which is Bradbury Dam at Lake Cachuma. Thus, rainbow trout above Bradbury Dam are not listed. The City has worked as a member of the Cachuma Conservation Release Board, along with other affected agencies, to continue data collection and research, and to complete projects aimed at enhancing steelhead habitat, improving fish passage, and providing flow augmentations for steelhead, consistent with the Lower Santa Ynez River Fish Management Plan prepared by the Santa Ynez River Technical Advisory Committee in 2000.

Gibraltar Pass Through Operations: The Zaca Fire burned approximately 60% of the Gibraltar Reservoir watershed, normally the source of about 35% of the City's water supply. On top of historical siltation, the reservoir's storage capacity has now been reduced by an additional 1,500 AF, leaving a storage volume of 5,303 AF. In 1989, the City entered into the Upper Santa Ynez River Operations Agreement (the "Pass Through Agreement") with other members of the Cachuma Project. The City agreed to defer its planned enlargement of Gibraltar Reservoir in exchange for provisions that would allow the City to "pass through" a portion of its Gibraltar water to Lake Cachuma for delivery through Cachuma Project facilities. The City has elected to commence this phase of operations and is working with the U.S. Bureau of Reclamation to negotiate a "Warren Act" contract, as required by federal law to allow such use of the Cachuma Project. Modeling work is underway to assess the effects of Pass Through operations as required for an environmental assessment. The Pass Through option will allow the City to maintain its historical deliveries as the Gibraltar Reservoir continues to silt in.

State Water Project/Delta Smelt-Wanger Decision: The Sacramento-San Joaquin Delta is the source of all water moved to the south by the State Water Project. A 2007 federal court decision (Wanger) restricted delta pumping to reduce impacts on endangered Delta smelt. This decision, and other similar limitations, continue to constrain deliveries of State Water through the Delta. As a result of this constraint and reduced statewide rainfall in the past three years, the Department of Water Resources has set the initial allocation at 5% of allotments for State Water Project participants during 2010. While this number is the lowest yet, the final allocation will be determined based on the results of precipitation

during the current winter. Last year's allocation began at 15% and was eventually increased to 40%. The City relies on State Water to a limited extent and we don't expect significant impacts during the coming year based on the reduced allocation. In addition, the ability to now store carryover State Water in San Luis Reservoir increases our flexibility.

Plan Santa Barbara/Long-Term Water Supply Program Update: As the City conducts the *Plan Santa Barbara* process to update the General Plan, analysis of the City's long term water supply is being done to support the process and provide the information needed for an update of the City's Long-Term Water Supply Program (LTWSP). The following efforts will provide the information for the completion of this plan:

- Desalination Rehabilitation Study: The study has been completed. It assesses the feasibility, schedule, cost, and permitting issues associated with potential future use of the facility, if it is needed in response to severe drought or other supply interruptions.

- Water Supply Planning Study: This study has been completed. It includes sections on State Water Project reliability, local climate change implications for water supply, expanded use of recycled water, opportunities for increased water conservation, and a general evaluation of the City's water supply management practices.

- Water Demand Factor Update: A demand factor update has been completed to support water use analysis that will be a part of the *Plan Santa Barbara* process.

- Gibraltar Pass Through Modeling: The work being done for the environmental assessment of Pass Through operations at Gibraltar will also provide more accurate estimates of the yield of the reservoir under this new operating scenario.

- Water Conservation Technical Analysis: A technical assessment and cost/benefit analysis of a wide range of potential additional water conservation measures is planned. This will use preliminary information developed in the Water Supply Planning Study to identify the optimal measures to be included in the updated LTWSP.

- Groundwater Modeling Update and Sustainable Yield Analysis: A contract with the United State Geological Survey is planned to update and enhance current models to more accurately predict potential impacts of seawater intrusion, usable groundwater storage volume, and safe yield of the City's groundwater resources.

The information developed above will be the basis of a comprehensive analysis of our overall water supply and recommended update of the LTWSP for the period of 2010 through 2030.

Appendix A – Supplemental Water Supply Information

Groundwater Balance

Project conditions of the State Water Project (SWP) require the City to use SWP water to offset any demonstrated groundwater basin overdraft. Under the LTWSP, the City uses groundwater conjunctively with surface supplies, such that significant groundwater use only occurs when surface supplies are reduced. Basins are rested following periods of heavy pumping to allow water levels to recover. As summarized in Table A-1, the perennial yield exceeds average annual pumping and groundwater basins are in long-term balance with no overdraft projected. More detailed analysis is available in the LTWSP Environmental Impact Report.

Table A-1. Groundwater Balance

Estimated Perennial Groundwater Yield of 3 Groundwater Storage Units:	1,900 AFY
Approximate Pumping by Private Pumpers:	-500 AFY
Net Perennial Yield Available to the City:	1,400 AFY
Average projected City groundwater pumping under LTWSP analysis at full LTWSP demand of 18,200 AFY:	1,000 to 1,300 AFY
Groundwater Production in 2008-2009:	1,059 AF

Projection of Supply Availability

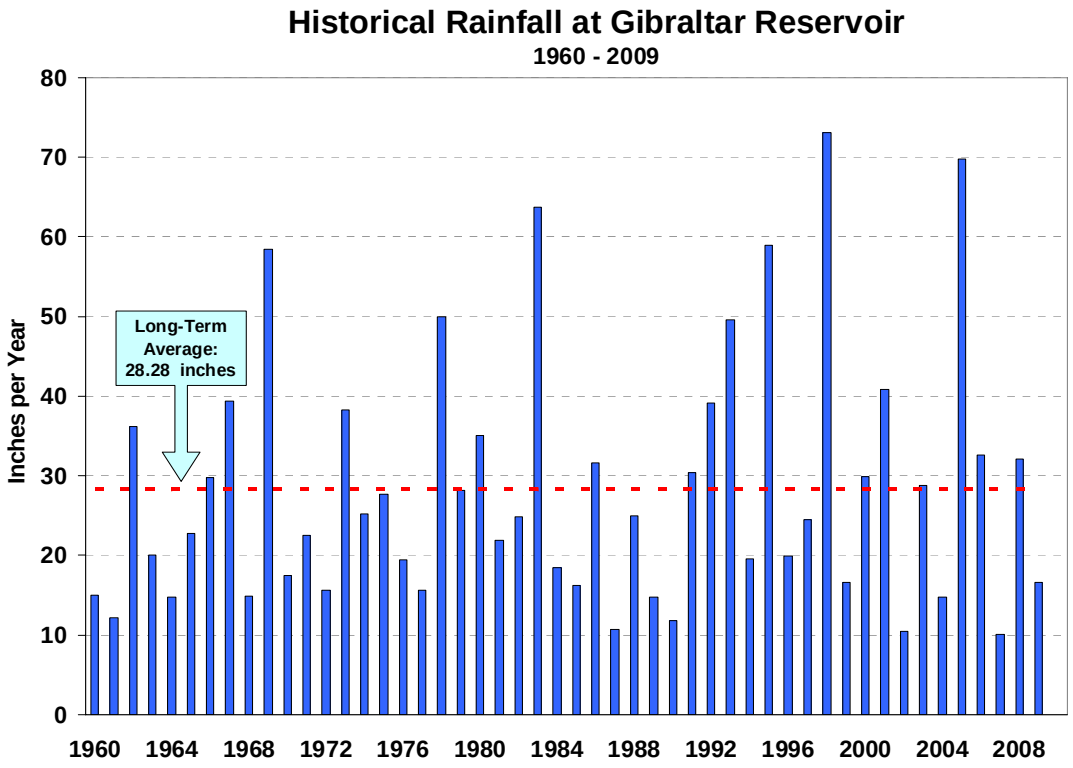
Table A-2 summarizes the City's water supply sources and fulfills a requirement of the project conditions for the SWP. The projected 2009-2010 Supply Plan reflects a projected total demand of 14,000 AF.

Table A-2. Sources of Supply (AF)

Source of Supply	WY 2009 Original Plan	WY 2009 Actual	WY 2010 Supply Plan Projected
Gibraltar Reservoir	3,341	3,654	3,000
Cachuma Project	7,848	7,132	7,456
Mission Tunnel	1,000	1,253	1,000
Devil's Canyon	(w/ Gibraltar)	76	(w/ Gibraltar)
Juncal Res. (300 AF from MWD)	(w/ Cachuma)	(w/ Cachuma)	(w/ Cachuma)
State Water Project	616	427	500
Groundwater	1,195	1,059	1,244
Desalination	0	0	0
Recycled Water	800	733	800
Net Other Supplies[1]	(na)	-543	(na)
Total Supply:	14,800	13,791	14,000
Total Demand:	14,800	13,791	14,000
Percent Shortage:	0	0	0

[1] Represents miscellaneous production sources (positive values) and water used from the distribution system for purposes such as transfers to adjacent water purveyors, groundwater recharge, or blending with recycled water (negative values).

Long-Term Rainfall Data



Per Capita Water Usage